U.S. Department
of Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

**East Building, PHH-23
1200 New Jersey Avenue SE
Washington, D.C. 20590**

**COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE FISSILE
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/0495/AF-96, REVISION 6**

**REVALIDATION OF JAPANESE COMPETENT AUTHORITY
CERTIFICATE J/143/AF-96**

This certifies that the radioactive material package design described is hereby approved for use within the United States for import and export shipments only. Shipments must be made in accordance with the applicable regulations of the International Atomic Energy Agency[1] and the United States of America[2].

1. Package Identification - RAJ-II.

2. Package Description and Authorized Radioactive Contents - as described in Japan Certificate of Competent Authority J/143/AF-96, Revision 1 (attached).

3. Criticality - The minimum criticality safety index is 1.0. The maximum number of packages per conveyance is determined in accordance with Table X of the IAEA regulations cited in this certificate.

4. General Conditions -

   a. Each user of this certificate must have in his possession a copy of this certificate and all documents necessary to properly prepare the package for transportation. The user shall prepare the package for shipment in accordance with the documentation and applicable regulations.

   b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Office of Hazardous Materials Technology, (PHH-23), Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.

   c. This certificate does not relieve any consignor or carrier from compliance with any requirement of the Government of any country through or into which the package is to be transported.

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[1] "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency(IAEA), Vienna, Austria.

[2] Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

d. Records of Quality Assurance activities required by Paragraph 310 of the IAEA regulations[1] shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipments under this certificate shall satisfy the applicable requirements of Subpart H of 10 CFR 71.

5. Special Conditions -

a. For shipments which enter into or transit the United States, all international approvals and revalidations, including Approval of Packaging and Confirmation of Packaging certificates issued by the government of Japan, shall be issued prior to the commencement of transport.

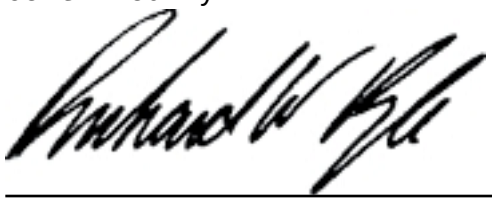
b. In accordance with the attached Japanese Certificate of Competent Authority, the package is not to be transported by air.

6. Marking and Labeling - The package shall bear the marking USA/0495/AF-96 in addition to other required markings and labeling.

7. Expiration Date - This certificate expires on November 18, 2012.

This certificate is issued in accordance with paragraph 814 of the IAEA Regulations and Section 173.472 and 173.473 of Title 49 of the Code of Federal Regulations, in response to the November 29, 2007 petition by Global Nuclear Fuels - Americas, Wilmington, NC, and in consideration of other information on file in this Office.

Certified By:



Robert A. Richard
Deputy Associate Administrator for Hazardous Materials Safety

**Jan 08 2008**
(DATE)

Revision 6 - Issued to revalidate, with higher criticality safety index, Japanese Certificate of Approval No. J/143/AF-96, Revision 1, dated October 29, 2007.

IDENTIFICATION MARK
**J/143/AF-96 (Rev.1)**

**COMPETENT AUTHORITY**
**OF**
**JAPAN**

# CERTIFICATE OF APPROVAL OF PACKAGE DESIGN FOR THE TRANSPORT OF RADIOACTIVE MATERIALS

ISSUED BY

MINISTRY OF ECONOMY, TRADE AND INDUSTRY
1-3-1, KASUMIGASEKI, CHIYODA-KU
TOKYO, JAPAN

# CERTIFICATE OF APPROVAL OF PACKAGE DESIGN FOR THE TRANSPORT OF RADIOACTIVE MATERIALS

This is to certify, in response to the application by Global Nuclear Fuel - Japan Co., Ltd., that the package design described herein complies with the design requirements for a package containing fissile uranium dioxide fuel assemblies, specified in the 1996 Edition (As Amended 2003) of the Regulations for the Safe Transport of Radioactive Material (International Atomic Energy Agency, Safety Standards Series No.TS-R-1) and the Japanese rules based on the Law on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.

This certificate does not relieve the consignor from compliance with any requirement of the Government of any country through or into which the package will be transported.

COMPETENT AUTHORITY
IDENTIFICATION MARK: J/143/AF-96 (Rev.1)

Oct. 29 2007
Date

Masanori Amano
Director
Nuclear Fuel Transport and Storage
Regulation Division
Nuclear and Industrial Safety Agency
Ministry of Economy, Trade and Industry
Competent Authority of Japan
for Package Design Approval

# SPECIFICATION

1. NAME OF PACKAGE : Type RAJ-II

2. CATEGORY OF THE PACKAGE : Type A fissile package

3. DESCRIPTION OF NUCLEAR FUEL PACKAGE
   - (i) Description of materials : See Attached Table - 1
   - (ii) Total Weight of Nuclear Fuel Package : 1490kg or less
   - (iii)Outer Dimension of Packaging
     - Length : Approximately 507cm
     - Width : Approximately 73cm
     - Height : Approximately 74cm
     - Over View : See Attached Figure
   - (iv) Weight of Packaging : Approximately 930kg
   - (v) Description of Nuclear Fuel Materials and so on : See Attached Table - 2

4. RESTRICTIONS OF TRANSPORT
   - (i) Restriction Number : 200
   - (ii) Array : No restriction
   - (iii)Criticality Safety Index : 0.25

5. SPECIAL FEATURES IN THE CRITICALITY ASSESSMENT

   The subcriticality calculation is evaluated upon assumption that the whole portion of outer and inner container is in immersion condition by water except fuel rods as the containment boundary under the normal conditions and accident conditions in transport.

6. DESCRIPTION OF NON APPLICABLE DESIGN STANDARD OF TYPE BU FISSILE PACKAGE ABOUT TYPE BM FISSILE PACKAGE

   This is not applicable to this type RAJ-II package.

7. INSTRUCTIONS ON USE AND MAINTENANCE OF PACKAGING

(1) Instructions on Maintenance of Packaging

(a) The packages or packagings shall be lifted with a forklift or exclusive crane.

(b) To keep the packaging, being covered by waterproof sheets in outside or inside of facility, the packaging shall be prevented from being immersed by rainwater.

(c) Periodical independent inspections of each packaging shall be conducted more than once per year. (In case where a packaging is used for transport more than ten times per year, the periodic inspections shall be conducted at least once every ten transports.)

(2) Actions prior to Shipment

Each package shall be checked for the following items before shipments.

(i) Visual Inspection
(ii) Lifting Inspection
(iii) Weight Measurement
(iv) Surface Contamination Measurement
(v) Radiation Dose Rate Measurement
(vi) Subcriticality Inspection
(vii) Content Inspection

(3) Precautions for Loading of Package for Transport

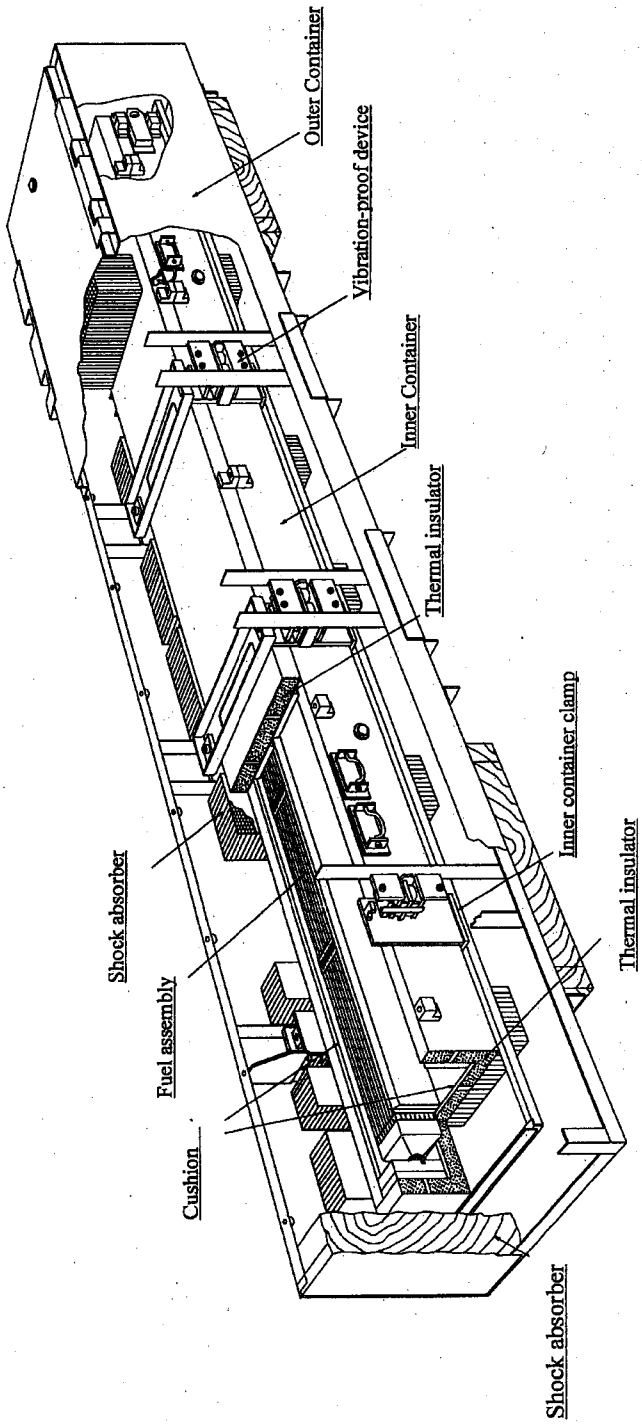
Loading of the package shall be performed such that the package will not move, roll down or fall down during transport.

8. THE ISSUE DATE AND EXPIRY DATE OF CERTIFICATE

(1) Issue Date : September 28, 2007
(2) Expiry Date : November 18, 2012

9. NOTE

This certificate does not relieve the consignor from compliance with any requirement of the Government of any country through or into which the package will be transported.




Attached Figure Over view of Type RAJ-II Package

Attached Table - 1 Description of Materials in Packaging Assembly

| | Portion of Packaging Assembly | Material and so on |
|---|---|---|
| Outer Container | Outer Shell | Stainless Steel (SUS 304;ASTM 304/304L) |
| | Angle | |
| | Shock Absorber | Balsa and Paper Honeycomb |
| | Gaskets | Natural Rubber |
| Inner Container | Outer Shell | Stainless Steel (SUS 304; ASTM 304/304L) |
| | Inner Wall | |
| | Thermal Insulator | Alumina Silicate |
| | Cushion | Polyethylene Foam |
| | Gaskets | Natural Rubber |

Attached Table - 2 Description of Nuclear Fuel Materials and so on.

| Item \ Content | | 8x8 Fuel Bundle | 9x9 Fuel Bundle |
|---|---|---|---|
| Description | | Non irradiated Nuclear Fuel Bundle (Uranium Dioxide) | |
| Property | | Solid (Uranium Dioxide Sintered Pellet or Gadolinia Doped Uranium Dioxide Sintered Pellet) | |
| Bundle Quantity in Package | | 2 Bundles or less | |
| Weight | Bundle | 560kg or less | 560kg or less |
| | UO2 | 397 kg or less | 400 kg or less |
| | U | 349.5 kg or less | 352 kg or less |
| Total Activity | | 45.5 GBq or less (2 Bundle/1 Package) | 45.9 GBq or less (2 Bundle/1 Package) |
| Enrichment | | 5.0 wt% or less | |
| Burn up Rate | | Not Applicable | |
| Total Heat Generation Rate | | | |
| Cooling Time | | | |
| Impurity Specification of Enriched Uranium | $^{232}U$ | $\leqq 2\times10^{-9}$ g/g$^{235}$U | |
| | $^{234}U$ | $\leqq 1\times10^{-2}$ g/g$^{235}$U | |
| | $^{236}U$ | $\leqq 5\times10^{-3}$ g/g$^{235}$U | |
| | $^{99}Tc$ | $\leqq 2\times10^{-7}$ g/g$^{235}$U | |

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**CERTIFICATE NUMBER:** USA/0495/AF-96, Revision 6

**ORIGINAL REGISTRANT(S):**

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